

## Graduate job market prospects hold up

by Paul Flather

Graduate students are escaping the worst effects of rising unemployment and recession, a conference of employers and careers advisers in Cambridge was told this week.

About 4.4 per cent of all graduates (2,882) were out of work at the end of 1979, six months after entering the job market. The "one" rate is thought to be much lower, well below the national rate of 7.8 per cent.

It will be tougher for graduates this year with most employers particularly the public sector pruning recruitment. But jobs will still be easier to find than for school leavers and those with lower qualifications. Personality, ability to work with others, and numerical skills greatly improve the chance of a job.

Ironically one reason for the buoyancy of the graduate market is the need for accountants and management to mastermind the run-down of firms and creation of redundancies.

Mr Anthony Ruben, chairman of the Association of Graduate Careers Advisory Services (AGCAS) said: "Higher education will not guarantee anybody a particular job but there is no doubt it will improve your chance of a job."

He said industry had reestablished confidence among graduates that it will continue to recruit consistently.

The conference, at King's College, was attended by representatives from 150 companies and sponsored by the Standing Conference of Employers of Graduates (SCOG).

Both employers and graduates have been to discuss "leaky" graduate employment has dropped off as suggested in recent general trends and by the offer of £1,000 made by an Essex graduate to anybody who found him a job.

They are still concerned at serious imbalances in supply and demand in the graduate market. They want academics and arts graduates in particular to learn the importance of acquiring skills such as numeracy or languages which help in securing jobs.

The graduate market is holding up, they say, because of the sectors of the economy relying on highly educated manpower and employers now recruit as an investment for the future and not just to meet current needs.

It has doubled in the past 15 years, according to the survey, and security, insurance and banking are traditionally areas reserved for a loyal school leaver.

This is partly because of tech-

nology which has changed the nature of the work.

Chartered accountancy has increased its intake of graduates by 15 per cent over last year.

Graduates are also being recruited as future middle and senior management. Firms that dropped off recruitment in the mid-1970s because of the oil crisis now say they regret the decision and are not keen to drop recruitment in the present recession.

But in some sectors like mechanical and electrical engineering there is a severe shortage of applicants. The General Electrical Company says it could absorb all 2,000 electrical engineers expected on the market this year.

Computer programming, sales work and financial jobs, all uncommon to a particular discipline, are also short of applicants. But biological, sciences, social studies and arts jobs are in short supply.

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Mr Dennis Doughty, the deputy librarian at St Andrews University, with one of the rare books which he has catalogued after five years of painstaking research. The books belong to Pluscarden Abbey in Elgin and include some of the rarest volumes in Scotland. The catalogue is published by St Andrews University.

## Youth unemployment figures may raise MSC cash demands

by Patricia Santinelli

The Manpower Services Commission is likely to ask the Government to expand the programme, particularly in the light of forecasted figures of youth unemployment for January 1981—a month when unemployment is usually at its lowest peak—of 150,000 or more, and 100,000 for January 1982.

The commission announced this week when presenting its Review of the Second Year of Special Programmes, that mounting youth unemployment figures, which for July stood at 342,000, including those on YOP, made it unlikely that the present size of the programme would be sufficient for the future.

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## Labour plan 'would attack independence'

by John O'Leary

The withdrawal of public aid for students who attended outside the state system is one of the options contained in Labour Party's policy document, published this week.

But the 50-page report, *The Schools*, concludes that the principal outweighs the benefits of the schools.

Although it is thought to make state schooling a condition of support in further and higher education, there is recognition that a decision would reduce independence of young people.

The policy, which has strong criticism from a range of sources, is also said to be with Labour's principle of young people qualified and able to do so without financial barriers.

No objections are raised further proposal to establish further relationship between schools and Oxbridge by closing closed scholarships.

Under the new plan, the programme is dropped, but authority maintenance would no longer be a condition.

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## Soviets woo Commonwealth nations

from John O'Leary

Third world nations at the Commonwealth Education Conference which opened in Sri Lanka this week have responded coolly to a Soviet Union offer to expand its scholarship programmes for students who can no longer afford to study in Britain.

British representatives at the conference have made it clear to delegates that there is no hope of a relaxation of the full-cost fees policy this year. Any change would come only after an assessment of the new policy's impact on overseas recruitment.

But two British representatives are taking part in the deliberations of a special committee drawing up plans which will help Commonwealth nations to cope with the new policy. Many member states are reluctant to take up the offer of more free university places from the Soviet Union.

British determination to stand by its fees policy has been met with resignation by officials from developing countries. The policy is the most controversial issue being discussed at the conference, and delegates have been surprised by Britain's willingness to sacrifice enormous good will for the sake of a small saving.

Discussion has been concentrated on constructive proposals for the future, rather than on criticism of the British policy. The developing nations are looking to countries such as India to take some of the students who would normally have gone to Britain.

Mr Joseph Arap Letting, Kenya's permanent secretary for higher education, said an offer of additional places in Moscow and elsewhere had been made despite Kenya's boycott of the Olympic Games. But the Kenyan Government had decided to cut back on the 100 free places traditionally taken up and not to accept more.

Other African countries are already sending more students to eastern European universities and have been invited to expand their programmes. In an attempt to shield the poorer nations from the worst effects of the fee increases, officials at the conference are considering an expansion of the Commonwealth scholarship and fellowship plan. They have also recommended a complete review of the plan over the next year.

The Commonwealth secretariat, in a paper on the fees issue, has suggested the introduction of more "split" courses to be undertaken partly in the developing country and partly overseas. It also recommends African, Caribbean and Pacific countries to explore through diplomatic channels possible exemption from the new fees as signatories to the Lomé convention with the EEC.

The use of more exchange schemes is also suggested, together with greater use of distance learning techniques. Education ministers will discuss the officials' recommendations in three days of talks next week.

For the longer term the secretariat has suggested trying to negotiate lower fees at institutions with historical and continuing significance for the Commonwealth. Imperial College, the School of African and Oriental Studies, the London School of Economics and the School of Hygiene and Tropical Medicine are among those quoted.

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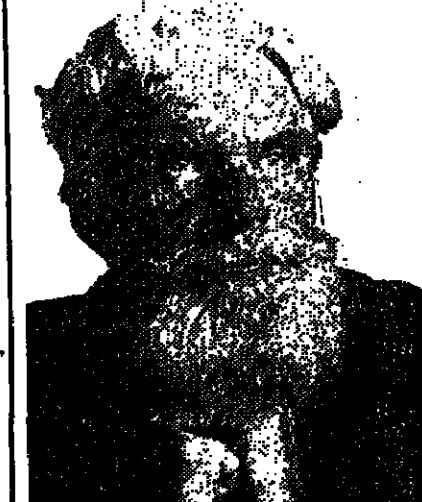
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Patrick Parrinder reviews a new biography of the tormented man who dedicated his life to studying the psychology of sex, 10

Art of management  
Geoffrey Lockwood discusses the findings of the OECD survey on the state of the art and likely future trends of university management in Europe, 9

Postgraduate training  
Susan Balsom suggests the creation of a new central postgraduate training council, 8

Faculty shortage  
Clive Cookson reports on America's critical shortage of academic manpower in university computing science and engineering departments, 4

Conditions of service  
John Akker of the AUT explains why the union is seeking national negotiating rights, 21

Youth work  
Patricia Santinelli talks to Mr Derek Foster, MP, chairman of the Youthaid committee investigating the effectiveness of the Youth Opportunities Programme, 6

North American news  
Overseas news  
Books  
Noticeboard  
Classified Index

Opinion  
Union view, Science in America, Don's Diary  
Ted Wragg, Letters  
Leaders (UGC expansion, pay, lecturer training), Steven Muller

## SRC sponsors industry scheme

The first of the Science Research Council's experimental schemes for training graduates in industry are to be set up at Warwick University and the Cranfield Institute of Technology, it was revealed this week.

The Integrated Graduate Development Scheme, which was launched and piloted through the council by its chairman, Sir Geoffrey Allen, is intended to "provide a structured introduction for young scientists and engineers entering industry through collaboration with companies, as opposed to present academic approaches such as MSc courses."

One scheme is to be set up at Warwick University in September involving graduates employed by British Leyland and Lucas Industries. The other, which starts in January, will be at Cranfield, which will train

on graduates from mainly engineering—who have just started work for the bearings company Rapson, Hoffman Rolland.

In both cases about 15 to 20 graduates will be involved and will serve their two-year part-time apprenticeships through project work and courses at the higher education centres. More than £100,000 is being provided to fund the scheme by the SRC while some extra money may come from Warwick or Cranfield and graduates will also be paid company salaries.

Professor Brian Hundy of Cranfield's production studies department said the scheme was intended to "open the eyes of young graduates about manufacturing industry and once its success had been established could become a permanent feature, where and would involve

## 'Secrecy' charge refuted

Allegations from Mrs. that attempts to restrict education policy were being thwarted by secrecy have been dismissed in a formal government reply.

A spokesman of the Government said that the government was not aware of any such allegations and that the government was not aware of any such allegations.

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## Science Research Council cuts more 'alpha' projects

The findings are often taken up for further development and industrial application by medical, agricultural and engineering researchers.

About 80 out of a total of 300 alpha applications received by the board in March were rejected.

At its most recent meeting, the council's science board turned down 30 per cent of the best projects that were asked to fund. This was the second time the SRC rejected some applications.

The SRC is now attempting to balance the needs of various different groups of scientists and engineers by cutting down on the number of alpha projects that are funded.

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## Oxford press in the red

by Paul Flather

Oxford University Press, the largest independent publisher in Britain after the government-owned HMSO services, has gone into the red.

A forecast of the accounts which will be put before the university's governing body, the Hebdomadal Council, in October, reveals that the company expects to report a loss of about £1m on its 1979 trading.

The deficit is blamed on a strong pound, which has hit exports which account for more than half of the company's total sales, high interest rates and a severe drop in demand.

Miss Elizabeth Knipe, promotion manager, said: "Naturally we are very concerned by the outlook. Books always seem the first item to be cut."

## Science Research Council cuts more 'alpha' projects

by Robin McKie

Possible world-leading research has been rejected once again by the Science Research Council because its finances have been so seriously eroded by Government cutbacks.

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## Survey reveals the motives for study

by Charlotte Barry

Major differences in the motives of women and men participating in adult and continuing education are revealed in a confidential summary of a survey due to be published this autumn by the Advisory Council for Adult and Continuing Education.

It shows that while most men enrol in courses that will teach them a specialist skill for their work or lead to a better paid job, the majority of women still use adult education courses as a means of getting out of the home or as an opportunity to meet people. However, a growing number are enrolling on courses which will train them in a vocational skill.

The survey, which takes a comprehensive look at the educational experience and needs of adults, was carried out on behalf of the advisory council by a private firm of market researchers which interviewed a sample of 2,500 adults throughout England and Wales.

The aim was to assess existing participation in adult education, find out more about the needs and interests of those with low educational experience, identify the factors preventing people from taking part and investigate the present and future demand for continuing education.

Of those interviewed, 37 per cent had stayed at school beyond the statutory leaving age and 12 per cent had continued full-time education after school. While 12 per cent were studying a post-industrial course at present, 37 per cent had taken any course, and 21 per cent had taken one within the past three years.

Nearly half those interviewed (46 per cent) said they wished they had

taken a full or part-time course and that the main barriers were cost and lack of knowledge about what was available. Men would have preferred a course in engineering or science (23 per cent) or building (13 per cent). Women would have opted primarily for nursing or medical courses (19 per cent) or secretarial training (18 per cent).

Of the 23 per cent who had taken a course in the past three years, 59 per cent of the men said that it had related to their present work, mostly in engineering, business or administration. This compared to 27 per cent of the women, who preferred keep fit or sport followed by handicrafts and secretarial or office training.

Whereas the motivation behind 42 per cent of the men was seeking a specialist skill for a job and a further 21 per cent were doing it to get better paid work, 33 per cent of the women said it was an opportunity to meet people and 22 per cent said it was to get out of the home.

Correspondingly, many men went to courses arranged by their place of work whereas women favoured an evening institute or adult education centre. Although 39 per cent of the sample thought that students should pay the full cost of their studies, 47 per cent thought they should pay only part of the cost. However, only half were aware of exactly how much a ten-week course would cost them.

Of the 61 per cent of adults who said there were special subjects they would like to learn about, a large proportion of men named foreign languages followed closely by science and engineering. Women plumped for domestic science, followed by foreign languages and fine arts.

## Employers look again for compromise

by David Jobbins

Local authority employers are to have a further search for a compromise formula to avoid continued confrontations with lecturers' union leaders over redundancy procedures.

The two sides remain deadlocked over the status of the 1975 agreement between the Council of Local Education Authorities and the 70,000-strong National Association of Teachers in Further and Higher Education.

While the employers' view is that the agreement, which stipulates that one year's notice must be given, can be no more than a set of recommendations not binding on individual authorities, the union's view is directly the opposite.

The disagreement has threatened to destroy lecturers' faith in the new national joint council on lecturers' conditions of service.

Now, after two stormy meetings of the council dominated by union leaders' repeated protests at the behaviour of a number of authorities who have refused to adhere to the agreement, the employers' representatives have agreed to have another look at the issue.

Their daunting task is to find a solution which is not only acceptable to the unions but which would command the support of all education authorities.

Many authorities maintain that the 1975 agreement, drawn up to deal with isolated problems caused by a run-down in a clearly-defined area of study, is inappropriate for today's circumstances.

Senior management officials are already working on a scheme to enable savings to be made more quickly through redundancy programmes.

Both management and unions have expressed a desire to see the national council work towards a single negotiating body for both pay and conditions.

This objective requires changes in the Remuneration Teachers Act, the legislative basis for the Burmah committees. Officials are already working on proposals for the necessary changes, a process which will continue to become clear after a meeting between Mr Mark Carlisle, the Education Secretary, and local education authority leaders last week.

Natlie is now considering outstanding problems of national pay rates for researchers and lecturers. But deadlock remains over the employers' insistence that lecturers must make up the lost by the May Day bank holiday.

The accompanying chart indicates generally how much lecturers were paid in April 1979, what they are receiving now (ie 1979 salaries plus the first instalment of the 18.2 per cent Clegg award) and what they can expect with the full arbitration award and the second part of Clegg, which are both payable from September.

Behind the recommendations is a firm intention by the arbitration panel to keep the amount of new money within the region of 13 to 14 per cent. The employers relied heavily on their inability to improve on their 9 per cent offer (cut back from 13 per cent to take account of the Clegg award) in the face of Government determination to restrain local authority spending.

The MSC has been discussed with chief education officers at local authority planning meetings which the rate of participation in further education of young people on work experience schemes with YOP can be increased from the present 40 to 100 per cent.

Initially, 13 local education authorities, one in Scotland, one in Wales and the remainder in Britain, are to be chosen to conduct a year experiment which might provide a formula to increase participation for adoption on a nationwide basis.

The scheme, with its emphasis on local authority wide planning, marks a departure from the more piecemeal and more direct approach to colleges currently in existence.

Each participating authority is to draw up a local plan of the number of young people flowing through work experience during the year and the numbers likely to receive further education within existing facilities. It will then be able to assess how the rate can be increased from 40 to 100 per cent or a lower figure by providing extra facilities either within the help of colleges or outside centres.

"Our main objective is to give some lessons," says the MSC, "whether it is of a particular kind of administration or planning which has proved successful, and which can be recommended to other authorities."

The Commission is also aiming for the results of its latest survey on the numbers of young people leaving the programme to see what action can be taken on this front. Their last survey showed that one out of 10 youngsters went on to further education or training.

According to the NUS fees of over 200,000 are going to be implemented at Bedford College of Higher Education, Hatfield, Huddersfield and Kingston Polytechnic and one half of fees at Liverpool Polytechnic will lose all evening staff and weekend catering will be cut.

Staff catering staff are to be made redundant at Middlesex Polytechnic and at Oxford Polytechnic. Brighton Polytechnic may be turning some of its canteens into shops, food prices at North Staffordshire Polytechnic are being increased by 25 per cent and Birmingham Polytechnic is closing four of its canteens.

LEAS proposals are controversial and "unworkable," said Leighton Andrews, NUS vice-president. "They have a completely one-sided approach to the question of catering efficiency."

The NUS has suggested that more should be made of the canteens during the summer months by opening the colleges up to outside conferences and the local community.

The work is intended to improve knowledge of present geological processes and earth movements by studying those that have taken place in the past and which are recorded in rock structures.

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## North American News

## Faculty shortages reach crisis point

from Clive Coolson

WASHINGTON Universities are finding it almost impossible to recruit new faculty members in some technical subjects. The shortage is most acute in computer science, where overworked departmental chairmen are talking freely of an academic manpower crisis. The supply of young faculty members is also drying up ominously in many engineering disciplines, though engineers are generally not as badly off as their computing colleagues.

Last month the chairmen of about 50 of the 70 PhD-granting computer science departments in the United States and Canada met in Utah, under the auspices of the Computer Science Board, to discuss the crisis. They agreed that the time had come to bring it to the attention of the public, and members of the group are now working on a position statement that will probably be released next month.

The causes of the problem are similar in computer science and engineering. A general shortage of skilled manpower in these fields, combined with rapidly increasing demand for their services, means that companies are competing more and more fiercely to recruit new graduates.

Each year the College Placement Council reports a new surge in job offers for engineering and computer science students. Its latest survey, published last week, says that engineers got 63 per cent of all offers received by this year's graduates. And their starting salaries are well above the normal level for mid-career academics. Someone with a bachelor's degree in petroleum engineering this summer can expect to start on \$23,844, and the average for new graduates in chemical engineering is \$21,612—more than the national average for associate professors.

When they are deluged with offers like these, it is not surprising that few graduates in engineering and computer science choose to go on to a PhD programme, where they expect to earn only five or six thousand dollars a year as teaching assistants. And most of those who do stick it out and obtain a doctorate are lured away by industry, leaving only a handful available for academic employment.

"We figure that, altogether, we probably have only 50 new PhDs a year willing to join a university faculty," that we all fight over," said John Hamblen, chairman of Computer Science at the University of Missouri at Rolla. Dr Hamblen, who conducts a computer manpower survey for the National Science Foundation, estimates that the total American demand by industry, government and academe for computer-related PhDs is 1,300 a year, while the annual output in 1978/79 was only 326.

Dr Hamblen said he has been trying to fill two vacant positions in his department for two years. The campus administration has authorized him to offer a nine-month salary of \$24,000 to new PhDs—an unheard-of starting rate for most academic disciplines—but he has not been able to recruit anyone. Most of his colleagues elsewhere are in a similar position.

Faculty recruitment is also at a standstill in many major engineering departments. George Low, president of Rensselaer Polytechnic Institute, said in an interview that 10-15 per cent of the 170 engineering faculty positions in the United States are vacant.

The total American output of engineering PhDs fell from 3,400 in 1969 to 2,800 in 1979, and an increasing proportion were foreigners, leaving a substantial decline in the number available for employment in the United States. Since the mid-1970s the industrial demand for PhD engineers has been increasing voraciously, and, of course, corporations can offer them far better salaries than universities.

"If the trend continues we may have still more difficulty finding new faculty with appropriate new degrees," said Lawrence Von Terach, dean of engineering at Michigan State University. The competition from business and industry is very heavy, and has increased with the new emphasis in Washington on energy, military hardware and aerospace.

University engineers and computer scientists emphasize that salary differences between industry and academe are not the only reason why they are losing out in the recruitment competition, and many believe pay is not even the most important factor. As they say, people are attracted by the freedom and flexibility of academic life and because they enjoy teaching and research—no one works in a university to make a lot of money.

The essential problem, then, is

that universities are losing some of their non-monetary attractions. That is partly because engineering and computing departments, although swamped by undergraduate students, are swamped by undergraduate students. The US Department of Education projects a doubling of the number of bachelors degrees awarded in computing and information sciences between 1974 and 1984; in engineering, the increase is expected to be more than 70 per cent.

As a result, faculty in these fields are feeling increasingly harassed and overworked, teaching too many students and having little time to pursue their research interests. Their problems are of course exacerbated by their inability to recruit new young colleagues or even graduate students with whom to share the teaching load and cooperate on research projects. It is a classic vicious circle.

Furthermore, fewer and fewer universities can afford to buy up-to-date equipment for their computing and engineering laboratories, to match the facilities of a major industrial research lab. The general consensus in the field is that only three universities computing laboratories in the United States today provide a general research environment comparable to corporations like Xerox, Bell and IBM.

B.B. Ritchie, chairman of computer science at the University of Washington, Seattle, said the universities of last month's meeting in Utah were that universities "must provide a computing laboratory capable of sustaining leading edge research to rival the excitement of the work being done in some industry labs".

One contribution to an improved research environment is now being planned under the auspices of the National Science Foundation. It is a proposed computer science research network, which would provide rapid electronic communication between academic computing labs.

Kent Curtis, who heads the NSF computer science section said the foundation plans to expand its funding of experimental computing facilities, in order to make university departments more attractive to researchers. This year the government will spend a total of \$30.55m to support university computer science, he said.

Next year the NSF will start a new programme to support young investigators who have just completed PhDs in computer science and are starting their first academic jobs. "They're a group that needs particular help because that is a decisive point in their careers," said Mr Curtis.

Academic computer scientists welcome the NSF young investigator programme, which should enable them to retain a few more PhDs who would otherwise go to industry. But many university leaders in computing and engineering believe that the most helpful step the government could take would be to initiate a big new fellowship programme for PhD students in shortage areas.

Some hope that the government's review of science education and training, ordered by President Carter early this year and due to be completed later this month will recommend such a fellowship programme.

Meanwhile, engineering and computer science departments are making do as best they can with their present inadequate manpower. Most are able to relieve some of the strain by bringing in experts from local industry as part-time "adjunct professors" to teach one course each.

However, university presidents and senior administrators are generally determined not to take drastic and irreversible measures to deal with what many see as essentially a short-term, cyclical shortage. As George Low, president of Rensselaer Polytechnic Institute, said: "We can live with a temporary shortage, but if we were asked to do it and bring in less than the best quality of new faculty, we will have to live with the

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Meanwhile, engineering and computer science departments are making do as best they can with their present inadequate manpower. Most are able to relieve some of the strain by bringing in experts from local industry as part-time "adjunct professors" to teach one course each.

However, university presidents and senior administrators are generally determined not to take drastic and irreversible measures to deal with what many see as essentially a short-term, cyclical shortage. As George Low, president of Rensselaer Polytechnic Institute, said: "We can live with a temporary shortage, but if we were asked to do it and bring in less than the best quality of new faculty, we will have to live with the

computer science section said the foundation plans to expand its funding of experimental computing facilities, in order to make university departments more attractive to researchers. This year the government will spend a total of \$30.55m to support university computer science, he said.

Next year the NSF will start a new programme to support young investigators who have just completed PhDs in computer science and are starting their first academic jobs. "They're a group that needs particular help because that is a decisive point in their careers," said Mr Curtis.

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## Overseas News

## Absentee professors lured back to fold

from Uli Schmetzer

ROME

With a 40 per cent pay rise, education minister Adolfo Sarli intends to lure erring campus staff away from extra-curricular activities and back to the bosom of their alma mater.

In order to qualify for the biggest post-war rise in salaries, professors must have signed an agreement to work full-time on the campus.

On paper the ministerial reduction (contained in a mini-reform project for education now before parliament) appears formidable. It would boost the annual income of Italy's senior professors to a figure ranging from the equivalent of £10,000 to £15,000 a year.

In reality however the lure is too low for the two thirds of Italy's tenured staff who hold supplementary jobs as consultants and government officials on wages far more lucrative than their campus earnings.

"Among European academics the Italian professor is financially best off," says Rome sociologist Professor Franco Ferrarotti. "He writes books, he holds other jobs, he works as a consultant... and as a politician."

Successful Italian governments, prompted by angry students who may see their absentee professor once a year if they are lucky, have tried vainly to introduce legislation curtailing or prohibiting jobs outside the campus. After all many jobs of the members of Parliament asked to approve such a measure would have lost their faculty chairs had it been passed.

The list of present and past political leaders who simultaneously held or hold academic posts is endless. Former Italian Premier Aldo Moro was kidnapped and murdered in 1978, postponed cabinet meetings so that he could lecture in the morning, and Giovanni Spadolini and Christian Democratic Strongman Amintore Fanfani would never think of giving up campus lecturing which carries that aura of intellectual being which

has never failed to impress the Italian bourgeoisie. Besides, at the end of the road there is always a state pension waiting for the long-serving academic staffer. "Full-time teaching would restore maximum efficiency to the campus," says Minister Sarli, quite rightly.

However, Signor Sarli's predecessor, Professor Salvatore Vulliamti, director of Perugia's University for Foreigners, already picked a horse to race when he tried to push through a decree excluding all government officials from simultaneously holding campus tenure. Political colleagues of the valiant Vulliamti had already deleted this proposed discrimination by the time the reform reached its first sitting in the house. The result was that the 72-year-old Vulliamti lost his cabinet post and the rectorship which he held simultaneously.

The Italian spectacle of professors slipping to their faculties in chauffeur-driven Government limousines escorted by blaring police sirens for a quick lecture between political commitments was graphically illustrated this month by a survey which showed that 67 per cent of Italy's economics professors work also as consultants or in official capacities.

The survey, compiled by the Communist Party's reputable centre of economic studies (CESPE), found that 52 per cent of these professors held not only one but two jobs outside the campus.

Worse, 55 per cent of these professors are also employed by the state outside the campus, so that in fact the nation pays them two or three salaries for different tasks. The highest employment rate of these academic mercenaries is in public administration (33 per cent) followed by public research centres (20 per cent) and state-run companies (9 per cent).

Private computer, trade unions and international organizations follow in prominence. But the survey says: "Professors grab anything from state jobs to bank jobs."

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Lecturer Lars Bille at the Institute of Social Subjects at the University of Copenhagen, said he thought the discussion about the establishment of the new department "has taken a wrong direction. The thing is that the University of Aarhus is afraid that students will prefer to read at the University of Copenhagen than at the University of Aarhus in Jutland, which is feared competition. During the past 25 years the institute has gained a considerable reputation, especially for its course in administrative science."

The manager of the institute, Ole P. Kristensen, said that he thought the decision wrong, but if the University of Copenhagen limits the number of students, no great harm will be done. "The planned quota of some 50 students or more per year at the University of Copenhagen will be difficult to maintain, he said."

Prosecuting lawyer Roanne, said Dr Buettner-Janusch should be able to get away with his case because "no one would believe that a man of his reputation would have made any drugs for sale."

Later, in the same court, chemistry professor William Walker pleaded guilty to "conspiracy to manufacture and sell illegal drugs" (including LSD and amphetamine) and "aiding and abetting". He admitted using his laboratory at the State University of New York at Binghamton to synthesize drugs, though he had resigned from the university after his arrest. He was escorted a federal undergarment through his college laboratory.

The Northern Territory is pressing ahead with plans to set up a twelfth university in operation by 1992. The territory's chief minister, Mr. McEwen, has appointed a planning committee to study the feasibility of a new university system of the territory, which would be concerned with technical and further education, and which included both traditional and community colleges.

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## India doctors' training a 'mismatch'

from A. S. Abraham

BOMBAY India has 80,000 more doctors than it can sustain and is continuing to "over-produce", a recent World Health Organisation study has concluded.

This is despite having one of the most unfavourable doctor/patient ratios in the world. Referring to the "rapid expansion" of medical studies in India, the report says: "It is not clear whether the policy behind this rapid expansion was to compensate for migration losses, to create better rural coverage by a massive 'overspill', or merely a response to a large demand for medical education which was completely unrelated to the economic demand for physicians."

The report blames the nature of Indian medical education which produces physicians who tend to be unsuited to work in conditions prevalent in a poor country such as India, especially in the rural areas.

Indian medical education is the handwork of the Medical Council of India which adopts international criteria "and mostly not adapted to the needs of the country". As a result, Indian doctors can function only in a "highly expensive, urban and curative-oriented" system, mostly in the big cities, in which specialists "with qualifications far removed from the real needs of the nation" play a key role.

Since such a system is confined not only to urban India but also to the richer classes in urban India, its potential clientele is limited to a fraction of the total population. For this small group, the number of doctors coming out of medical colleges is more than adequate. Hence the "surplus" of doctors.

The obvious side of the over-supply is the lack of support staff, especially nurses. "There are more physicians than nurses in India," says the report.

Attempts by the government to induce doctors to work in the villages have failed largely because the villages do not usually have even the most rudimentary professional or living facilities.

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## British don resigns from Dutch post

from Lionel Cohen

NIJMEGEN

If the appointment of a British professor in a Dutch university is unusual, the voluntary departure of one of these rare British emigrants from so unique a post is an even more remarkable event. Yet this is precisely what Dr M. J. S. Rudwick, for six years professor of history and the social aspects of the pre-historic at Amsterdam's Free University, announced last month having resigned his post with effect from January 1, 1980.

The factors which led to this decision to give up such a lucrative and influential academic position were outlined by Professor Rudwick in a letter published in a recent edition of the Free University's news paper *Ad Valorem*. The letter makes clear that, at the root of the problem was the difficulty facing every academic taking a foreign post, namely to adjust to quite different sets of social and educational values—not to mention political practices—which form an integral part of the new working situation.

In short, Professor Rudwick found that distant fields were not always greener. In his letter he declared his intention of returning to England just as soon as possible after "one of the most unfortunate and frustrating periods of my life". Almost everything, it seemed, had conspired to upset and frustrate the professor. On the one hand, he castigated the teaching staff for the time that they spent on their so-called "democratic" administrative functions—these were, according to Rudwick, no more than "an excuse for their lack of scientific capacity"—while at the same time he complained bitterly of how a "witch hunt" had been developed against one of those staff, Henry Broekmans, following his resignation as director of a political group calling itself the Centre Party which had been linked with attacks on Moroccan immigrants earlier this year. It seems that Broekmans himself had nothing to do with these attacks, but Professor Rudwick levelled the accusations of "fascism" against Broekmans by some of his Dutch colleagues and students to be the last straw.

What seemed to irritate the resigning professor particularly was the contrast that



Patricia Santinelli meets the chairman of a Youthaid committee of inquiry

## Jobless young get a Foster father

When the debate on unemployment resumes in the Commons this autumn, it is likely that a new voice on youth and education will be heard from the backbenches that of Mr Derek Foster, Labour MP for Bishop Auckland.

With youth unemployment threatening to reach the 40,000 mark, there is need for one who can speak authoritatively from first-hand experience and knowledge of unemployment, industry and the youth and education service.

As an MP newly elected in the last general election he is as yet an unknown quantity to the House. In fact he is not a man of half measures. He left a successful managerial career in the motor trade because he felt he could not devote himself to it fully, and he likes to be engaged in what he is doing.

He does admit, though, that a political career was not one of his burning ambitions. He simply did not turn down the opportunity when it arose. Perhaps this is why he is under no illusion about the power and influence of backbench MPs.

"I think I had as much influence as chairman of the North of England Development Council negotiating directly with ministers as I have now," he says. "But no doubt in time you can get to grips with certain areas of decision-making and gain an understanding of how you can influence ministers at certain strategic moments. I am hoping that the current debate will have this effect on the Manpower Services Commission and ministers, but it remains to be seen."

Mr Foster recently became chairman of a Youthaid Committee inquiring into the effectiveness of the Youth Opportunities Programme in the North. The committee, led by Mr Foster, is a joint venture of the Manpower Services Commission and Youthaid, a pressure group on youth unemployment, says he quickly sought him out when he realised his passionate commitment to the interests of young people.

Derek Foster has some affinity with the young people who come onto YOP. He still looks back on his period of unemployment between industry and the youth service as a bitter and destructive one. Moreover, his own subsequent



Removating old and listed buildings is one of the activities young people could find themselves working on when they join a work experience scheme in the Youth Opportunities Programme.

entry into the youth and community service as a full time officer in Washington New Town, Durham brought home to him the stark realities facing disadvantaged youngsters.

"My previous experience as part-time youth worker had been with relatively 'easy' young people," he says. "But these youngsters had gained nothing from education and their one way of establishing some kind of self respect was by association with delinquent heroes," he says.

He said this struck him particularly, coming from an aspiring but similarly poor working class background in Sunderland. It was one in which he had never felt deprived, mainly because his parents had been great believers in progress. In fact he went on from grammar school to do Politics, Philosophy and Economics at St Catherine's College, Oxford.

"But these young people had no

exercise in democratic participation," Mr Foster said.

He used very similar methods as assistant education director (Further Education) in Sunderland where unemployment was rising fast. He had to come to grips with pockets of decaying inner urban areas where 60 per cent of the population depended on supplementary benefits for its income and where not one youngster stayed on at school after the age of 16.

Much of this coincided with the imminent publication of the Holland Report, on measures to help the young unemployed, whose author, Geoffrey Holland, is currently director of the Special Programmes Division of the MSC.

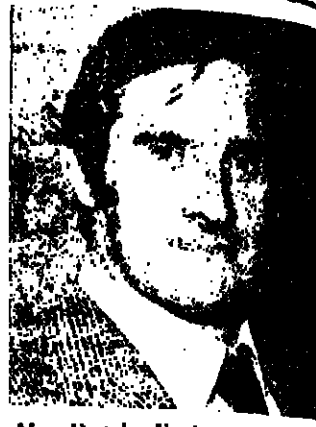
"The director of education in Sunderland was very anxious to come to grips with youth unemployment and enhance the contribution of further education, as a result we had a copy of the report the very day after it was published," he said.

Mr Foster says that Sunderland which had been very active with the Job Creation Programme, grasped the report with open arms and immediately set to work on a planning programme. This involved discussions with all the necessary agencies to work out the extent of the problem and devising the most effective methods for assessing and distributing resources for young people.

"Right from the start we insisted that further education colleges should play a big role; out of 2,000 places, we were planning for at least 370 in FE," he said. "As a result of planning to well in advance and informing colleges of our requirements we were quickly able to tell the MSC what resources were needed for converting classrooms and getting extra staff. So that Sunderland got off to a very good start."

His deep belief in the contribution that further education can make to YOP is reflected in the foundations of the Youthaid inquiry into the programme.

It is a trust largely based on the fact that as youth unemployment rises the success rate of the programme in enabling youngsters into jobs is declining rapidly; in places like Cleveland it is down to 30 per cent. On this basis, YOP in its present form cannot be justified as



Mr Derek Foster in a moment with the unemployed.

increasing employability. The inquiry's report which is expected to be published in late September is likely to make recommendations that the programme should be re-organised into an education and training scheme for the young unemployed, which would give an up to date merchant and philanthropist very neglected group of young people the opportunity of a very high level of education.

He has two worries. One is the inability of the MSC to monitor the quality of the programme and that it does not have the staff at local level to check each cadet with a Prayer Book and New Testament.

However it was 150 years before serious consideration was given to the need for a national service of work experience. In 1912, Dr Albert Mansbridge, founder of the Workers' Educational Association and the National Council for the Education of the Working Class, set up the first of its kind in the country. It was a working allowance, he hoped, that would have been the quality of off-watch and that its recommendations should be solely concentrated on the narrow issue of using scarce resources for the 16 to 19 age group.

"My major objective is to get more young people into further education. There are many people who could benefit from the service offered, but it is a considerable task to get them into the system. The service was founded in 1912, but the college's teaching

## Learning on the ocean wave

Charlotte Barry looks at an unusual port of call for sailors with a thirst for something other than rum

In a sunny courtyard in Lambeth, London, just 200 yards from the south bank of the River Thames, the Astronomer Royal as well as several heads of Oxford and Cambridge colleges to take part. When war broke out, the service was extended to the Royal Navy.

A quick result of this move, a young economics graduate called Ronald Hope had his first brush with the two organizations while doing his war service in the navy.

In 1947 he resigned his fellowship at Oxford to become their first director and when in 1976 they amalgamated with the Marine Society he took overall control. A spruce man with smooth silver hair and inconspicuous shaggy white eyebrows, Dr Hope is acutely aware of how dramatically life on board has changed in recent years.

Following the decline of the passenger and small cargo ships and the introduction of container ships and bulk carriers, the average complement has fallen to a maximum of between 25 and 30. His view is that life on board ship as part of a community severely restricted in size must be made more tolerable, and as well as providing general educational facilities the library and correspondence college can help seafarers keep abreast with new ideas.

Today, more than 2,000 seafarers, fishermen, lightkeepers and women at sea with their husbands write to the College of the Sea for the first time every year. Some are seeking career advice, some are inquiring about studies of different kinds and some are wanting information about specific interests.

Each year, there are about 300 new enrolments among the 800 active students who are studying for Open University degrees, GCE exams, City and Guilds, carrying out remedial work or learning a variety of specialist subjects such as Hebrew, calligraphy, Gaelic and the construction of a sundial.

A total of about 200 voluntary tutors in universities, polytechnics and colleges teach the huge range of correspondence courses, which are not set ones. Great emphasis is placed on a close personal relationship between tutor and student, who are encouraged to meet if possible before the start of a course. Most exams can be taken at sea or on shore. Seafaring applicants to the Open University are accepted automatically and they are able to be exempted from summer school. Four study bedrooms are available in the gatehouse of the Lambeth headquarters for those on leave who need intensive coaching in any field. The few set courses include a diploma in merchant navy studies, pre-retirement courses, and courses in book-keeping and economics. A new course in maritime English for foreign seafarers was added recently to the cassette bank.

## Brain behind a billion dollar handout to science

Science Correspondent Robin McKie talks to Dr Norman Hackman who for six years was in charge of giving out money to America's researchers



been a major supporter of university science since 1946, when he was the first director of the National Science Foundation. He has no direct equivalent in Britain, its coverage being far broader than any individual research council. It funds four major areas of scientific work: mathematics and the physical sciences; astronomy, the environment and oceanography; biological and behavioural sciences; and engineering and applied sciences. These each receive about \$200m a year from the NSF, with the remainder going to areas such as science education, science policy and international affairs.

"Every time Mr Carter goes about making bilateral agreements the first thing that is usually signed is for some scientific exchange and cooperation—and that is work that we have to carry out," said Dr Hackman.

The educational activities of the NSF are aimed at awakening a latent interest in science and broadening knowledge among the general population through the production of television shows, the development of teaching materials, the organization of teachers' conferences, the awarding of fellowships and other methods of encouragement.

But most of the foundation's money is spent on university research, although a considerable amount goes on general facilities such as the Oak Ridge research centre; the university astronomy centre at Tucson, Arizona; and the United States radio telescope array in New Mexico. These large centres are run for university scientists who have to work on bringing light to them.

Although different in structure and area of coverage, it is still possible to make comparisons between the NSF and British research support. There are several common trends—for instance, high energy physics and social science have been cut back in both countries while subjects such as astronomy, geology and oceanography have been relatively well in the United States.

"The trouble with the social sciences is that they are too closely identified with the problems of today and it is not so easy to stand back and obtain an objective viewpoint," Dr Hackman said.

"The Heisenberg principle—where observing an event interferes with its likely outcome—applies to the social sciences more than it does to any of the other sciences."

Most people in the US government understand the need for public money to be spent on basic re-



search that has no immediate prospect of application. Dr Hackman believes, although he acknowledges there is a small vocal minority who demand immediate results.

"When I testified before Congressional committees, I told them that public money should only go to science because it is the only thing I could not say when or how, I am very much on the side of those who believe public money should only go to science that is ultimately useful."

It is the job of the NSF to develop science, put it on a shelf and then wait for industry and Government to pick it up. "There it is, transform it into technology. You cannot have a technological society that does not spend money on basic, directionless research."

Take the McCormick reaper which gathers and bundles grain and which transformed last century's agriculture," Dr Hackman said. "There is a belief that McCormick was sitting on his sofa one day when a light bulb flashed over his head."

In fact there was a awful lot of science behind what he did whether he knew it or not. Mathematicians had to develop the concepts for design, others had to develop metals and alloys and many other background inventions were involved.

Now Dr Hackman—who has just been replaced after three terms by Dr Lewis Branscomb of IBM—believes the foundation should involve itself in two new and particularly important areas of work. The first is the development of new chemical products for powering underground petroleum stocks depleted by traditional means. The other is photoelectrochemistry—the conversion of light energy into electrochemical processes.

Despite some budget problems, the general prospects are good for Hackman added. Given the critical nature of its work, it should provide the National Science Foundation with a valuable role.

Science Correspondent Robin McKie talks to Dr Norman Hackman who for six years was in charge of giving out money to America's researchers

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Despite some budget problems, the general prospects are good for Hackman added. Given the critical nature of its work, it should provide the National Science Foundation with a valuable role.

Science Correspondent Robin McKie talks to Dr Norman Hackman who for six years was in charge of giving out money to America's researchers

money is spent on university research, although a considerable amount goes on general facilities such as the Oak Ridge research centre; the university astronomy centre at Tucson, Arizona; and the United States radio telescope array in New Mexico. These large centres are run for university scientists who have to work on bringing light to them.

Although different in structure and area of coverage, it is still possible to make comparisons between the NSF and British research support. There are several common trends—for instance, high energy physics and social science have been cut back in both countries while subjects such as astronomy, geology and oceanography have been relatively well in the United States.

"The trouble with the social sciences is that they are too closely identified with the problems of today and it is not so easy to stand back and obtain an objective viewpoint," Dr Hackman said.

"The Heisenberg principle—where observing an event interferes with its likely outcome—applies to the social sciences more than it does to any of the other sciences."

Most people in the US government understand the need for public money to be spent on basic re-

search that has no immediate prospect of application. Dr Hackman believes, although he acknowledges there is a small vocal minority who demand immediate results.

"When I testified before Congressional committees, I told them that public money should only go to science because it is the only thing I could not say when or how, I am very much on the side of those who believe public money should only go to science that is ultimately useful."

It is the job of the NSF to develop science, put it on a shelf and then wait for industry and Government to pick it up. "There it is, transform it into technology. You cannot have a technological society that does not spend money on basic, directionless research."

Take the McCormick reaper which gathers and bundles grain and which transformed last century's agriculture," Dr Hackman said. "There is a belief that McCormick was sitting on his sofa one day when a light bulb flashed over his head."

In fact there was a awful lot of science behind what he did whether he knew it or not. Mathematicians had to develop the concepts for design, others had to develop metals and alloys and many other background inventions were involved.

Now Dr Hackman—who has just been replaced after three terms by Dr Lewis Branscomb of IBM—believes the foundation should involve itself in two new and particularly important areas of work. The first is the development of new chemical products for powering underground petroleum stocks depleted by traditional means. The other is photoelectrochemistry—the conversion of light energy into electrochemical processes.

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Paul Flather on the National Union of Students' campaign aimed at improving lecturers' standards

## Unions spell out the problems of the illegible writing on the blackboard

Every student can tell a story about a lecture that failed to achieve its purpose. There is the one about the eminent professor who paced from end to end of a vast lecture theatre so that only half of every sentence was audible. There are stories of lecturers unable to read their notes because the pen is too small, or writing illegibly on blackboards, or unable to use standard aids such as slide projectors.

That is only one side of the picture but it is a side that seems to be increasingly worrying students. The National Union of Students has prepared a free initiative in its national campaign to extend lecturer training. Under the banner "They know it.. but can they teach it?"

Recent surveys of student opinion point out the strength of feelings. At Manchester University 77 per cent of almost 1,000 replies called for more training for lecturers, and a similar result came from Oxford.

The NUS says that at a time when pressure is building up on all sectors of education, more funds should be spent on lecturer training. Teaching ability is rarely taken into account in appointments and when it is, training is time lost from research.

It accepts that students should not be "spoon-fed" and indeed that they should be "stimulated into thinking". But, as Mr Andrew Green, NUS vice-president for education, says, the balance is shifting away from research towards teaching.

"We don't deny a role for research but we don't think there should be a clear division between

research and teaching. The major public justification for lecturers must come in teaching," he said. As part of the background of the decision, the Committee of Vice-Chancellors and Principals to cut off from next year all funds to the Co-ordinating Committee for the Training of University Teachers (CCTUT) has come as a shock to both the NUS and the Association of University Teachers which also supports extended though not compulsory lecturer training.

The decision was taken even though a special review group, under the chairmanship of Sir Harry Platt, former Vice-Chancellor of London University, had been set up to look at the CCTUT. The CCTUT should be more than doubled to £40,000 and its future secured for about another five years and then reviewed again. There was no suggestion that the CCTUT, which received soundings from 37 universities, that the CCTUT should be closed.

The CCTUT is regarded by both the NUS and the AUT as vital in any move to maintain and increase the level of lecturer training around the country, and the NUS is urging students unions to lobby Vice-Chancellors to reverse the decision.

The issue was first raised in 1945 by the AUT. But it was not until 1961 that the University Grants Committee set up a sub-committee on university teaching methods. In 1964 after the Hale committee reported favourably, service and training training courses started to take off. Then in 1968 the NUS published a report calling for compulsory training of all lecturers.

The NUS said that the CCTUT survey in 1976 reported a total of about £100,000 spent on training, less than one-twelfth of 1 per cent of their recurrent grant. The CCTUT is now seeking an urgent meeting with the CVC to discuss the CCTUT. It is also seeking an urgent meeting with the CVC to discuss the CCTUT. It is also seeking an urgent meeting with the CVC to discuss the CCTUT.

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The UGC provided £130,000 in 1971 to fund teaching projects at 19 universities, and in 1972 on the recommendation of a working group under Sir Brynmor Jones, which called for more induction and initial training courses, it provided £8,000 to set up the CCTUT.

The Committee has acted as an information central clearing house and has promoted and developed additional training courses at national and regional level.

At present most universities provide some form of training. A CCTUT survey in 1976 reported a total of about £100,000 spent on training, less than one-twelfth of 1 per cent of their recurrent grant. The CCTUT is now seeking an urgent meeting with the CVC to discuss the CCTUT. It is also seeking an urgent meeting with the CVC to discuss the CCTUT.

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They know it.. but can they teach it?



but can they teach it?

clearly united in their demand for increased training. The NUS wonders why it was necessary to consult universities again after the CCTUT survey was published. It also wonders if the views expressed came from the grass-roots or the staff finance committees.

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The NUS is now seeking



## When judging has a new meaning for examiners

From now on, I fear, I shall be roundly yanked by my students' work while I am busy with my own. I fear a more stringent one.

# Managing to make ends and means meet

Susan Balsom advocates the setting up of a centralized body to oversee and administer awards

## Time to consider the victims of a diverse funding system

The recent case of a law student, and tourism, credit

...understanding or that view-  
point amongst professional admini-  
strators than amongst academic  
staff involved in management.  
Those then are a sample of the  
outcomes of the part of the project  
concerned with one geographical  
area. Overall, we found that univer-  
sities retained their capacities to sur-  
vive, serve and surprise, and that the  
sustainable pride in their identity  
and outputs no longer led them to  
unreal expectations of economic  
growth and political praise.

The author is registrar and secretary of the University of Sussex.



# BOOKS

## Yorkshire family estates

## Inflation and influenza

book has nothing to say about the history of the kibbutz and the better chronicles of the time are more concerned, as the kings were, with affairs in the South and in France. The author has often to resort to conjecture and hypothesis, as anyone who tries to work his way through this book will find out; and, worse, though it is his doing, and reads everything that has been written about it, even though he may dismiss the place-name evidence in a somewhat cavalier manner.

His knowledge of the country and of the literature is very impressive indeed. He will take on any body, fight him and then outwitted the writer of the latest respected article; and if on occasion a suggestion becomes a firm basis for argument in the next paragraph but one, and doubts must hang over some of his highly ingenious arguments, this is nevertheless a most stimulating and enjoyable book which would appeal to many people beyond the academic circle as well as within it, and will advance the subject a long way not only by what it says but by the discussion. It will undoubtedly provoke.

**John Le Patourel**

*John Le Patourel is emeritus professor of history at the University of Leeds.*







## BOOKS

## Phases in the evolution of zoos

Great Zoos of the World: their origins and significance  
edited by Solly Zuckerman  
Weidenfeld & Nicolson, £12.50  
ISBN 0 297 77758 0

I had but once before seen a larger gathering of elephant but never such an impressive one. The dust raised by hundreds of shifting feet framed these magnificent animals and heightened the visual impact of the sight below. After taking in the sheer wonder of it all I photographed the scene, and whatever the photographic merits or otherwise of the result I cannot look at that picture today without a sense of awe, gratitude and sadness. I am grateful that I had been privileged to see and record such a sight; and that these animals had been denied their own territory by the march of human development.

The relevance of this personal reflection to Lord Zuckerman's book is quite simply that the picture I was flying, and the radio in the aircraft, had been provided by the New York Zoological Society and the Frankfurt Zoo, respectively. Gifted to the Uganda National Parks as an outwardly visible and highly practical expression of their concern for the need to conserve wildlife in wild places, and an indication of their commitment to conservation, this isolated gift is, of course, no reason why it should be much else which is, I believe, of considerable importance when examining the significance of zoological societies and animal collections has been omitted or but briefly mentioned.

Rejal Hoediger, in his book *Man and Animals in the Zoo*, suggests that one of the fundamental problems of zoos is that they do not learn from each other's successes and failures. In the light of this paradoxical one wonders whether they have in fact evolved in the sense suggested by Lord Zuckerman. He suggests that the first phase certainly involved the ancient Egyptians and probably even earlier civilisations in the collecting to either of wild animals for religious or mystical purposes. The Romans' use for their animal collections was anything but reverent; thousands being slaughtered at combats with man or with each other in the arena. This form of entertainment is no longer approved of, but look at the crowds watching the big cats being fed next time you are at a zoo and draw your own conclusions as to how far this change has gone.

The second phase was the development of collections paid in tribute or given as gifts. Considerable status was gained dependent on the size of the collection or the



Koala bears protected in Taronga Zoo, Sydney, one of the illustrations in *Great Zoos of the World*.

rarity of the animals. The scientific and educational phases came next, and in Paris and London. It has been suggested that Aristotle might well have made his study of animals with one or more of the Greek animal collections, and perhaps it is from this point that the seed began to push forth its roots. The fourth phase brings us into more modern times to the period between the two world wars when there was a period of general difficulty in zoo development and more particularly in the use of scientific purposes. Lord Zuckerman sees this as the period of decay.

The most recent phase is that of conservation and commerce, which have developed out of the ruins and difficulties of the last war. The conservation effort was a direct outcome of widespread human pressure on wild places and the wildlife they contained, an awareness that

something had to be done and a need to establish standards for species at particular risk. Many zoos became involved in breeding endangered species and one, Jersey Zoo, bases its whole *raison d'être* on the keeping and breeding of endangered species.

The book is a public demand to see wild exotic animals led to the development in many parts of the world of collections set up with purely commercial motives to meet this demand. Lord Zuckerman has never made any secret of his dislike for such establishments; as a scientist he must see them as a disgraceful waste of a scientific and educational resource. And this is his argument, his considerable merit. It does, however, reduce his objective in a chapter which tries to give some historical basis to the hypothesis of zoo evolution. The most critical of anti-zoo pro-

pagandists, whom the editor does not suggest that animals in safari parks suffer to the same extent that animals almost certainly suffered in the past in collections that operated under the banner of being scientific or cultural institutions. This point is, however, not made as well as the fact that some people who visit safari parks may be convinced of the magnificence and wonder of animal life in exactly the same way as they might be similarly convinced by a visit to a scientific zoo. The development of these awareness must surely be one of the major aims of any collection. I think Lord Zuckerman is guilty here of not following the advice that he gives to zoo reformers not to attack on too broad a front. There are some good safari parks as well as bad.

The editor is an extremely able organiser and this is reflected in the considerable care he has taken in setting out his requirements in his contributing team. The outcome of this is that this highly readable book does not suffer from conflicts of presentation from contributor to contributor, and yet the style of the individual sketches comes through. The thumbnail sketches of the individual collections selected are interesting and accurate; but because they are sketches they are appetizing rather than fulfilling.

Anyone wishing to learn in broad terms about the origin of zoos will find this well covered in Lord Zuckerman's section, as is the basic information relating to the individual collections. I must fault, however, in that I do not believe that the significant roles that individual zoos have played in research, education and conservation are sufficiently described. This is not a criticism of the selection process but of the fact that the book made the selection of the very special contributions of those selected have not been fully brought out.

Had this book got it right I would have been delighted and welcomed the opportunity to comment on it. I know and respect all who have contributed to its birth; welcomed it because I believe that zoos do have a significance in our time and in our community and are likely to have an even greater significance in the future. I am afraid, however, that excellent though the book is in so many respects in describing the origins of the roles of zoos and in detailing individual collections, it does not emphasise the significance of zoos. Thus, to my mind it misses a wonderful opportunity and in a sense fails to fulfil the promise of its title.

R. J. Wheater

R. J. Wheater is Director of the Royal Zoological Society of Scotland's National Zoological Park, Murrayfield, Edinburgh.

## Chemical kinetics

Kinetics and Dynamics of Elementary Gas Reactions  
by Ian W. M. Smith  
Butterworths, £25.00  
ISBN 0 408 70790 9

For many years, real progress in chemical kinetics lagged behind that in other branches of physical chemistry, but over the past few decades the situation has altered dramatically—due to the development of the digital computer and of other advanced technology, much of it fostered, sadly, by military need. Understanding has advanced in two main areas: in complex mechanisms as involved in hydrocarbon cracking and atmospheric pollution, and in the details of molecular events involving individual molecules in specified energy states. This is the first textbook to attempt a comprehensive account of the latter. It is therefore timely and valuable.

It is apparent that the author was presented at the outset with a serious dilemma, that of relating the current body of experimental data to a series of somewhat independent theories. He tackled the problem by surveying all the basic theory, by reviewing kinetics in Part I and then by presenting information in Part II. The approach is not entirely satisfactory, although any alternative might well have proven worse. The presentation would certainly have been hopper had there been less need to refer back continually to earlier chapters. A book of 387 pages, containing 95 figures and 42 tables, is a considerable achievement, but it has added little to the core and much to the clarity.

The over-riding strength of the book appears when Ian Smith draws upon his personal insight and experience to comment on the theory, the discussion, of simple collision theory, from a modern viewpoint, and the evaluation of the assumptions of transition state theory, against the evidence of experimental data. However, although his references to the literature of transition state theory are excellent, his references to the evidence of experimental data are not so good. The book is a valuable addition to the literature of chemical kinetics, but it is not a masterpiece.

R. J. Wheater

R. J. Wheater is Director of the Royal Zoological Society of Scotland's National Zoological Park, Murrayfield, Edinburgh.

## Growth of mathematical understanding

From the Calculus to Set Theory, 1630-1910  
edited by I. Grattan-Guinness  
Duckworth, £28.00  
ISBN 0 7156 1295 6

The history of mathematics has, until recently, been very neglected, both as a scholarly activity and in teaching. Undergraduates learn a great deal about large parts of mathematics, but very little about the origins or indeed the motivation. This has originated from the increasing professionalization of mathematics over the past 200 years, with the consequent pressure to present to students the essentials of a rapidly expanding world in a concise and correct form as possible. As Grattan-Guinness puts it "... in this tradition of mathematical education emphasis is usually laid on the accumulation of mathematical knowledge, on the amassing of the 'facts' which comprise a mathematical theory; it does not much consider the growth of mathematical understanding, the appreciation of why a mathematical theory developed and took its form, and not merely that it does have its content."

Now that the scholarly side is gaining momentum, there still remains the need for students. Apart from encyclopaedic works in which there is the ever-present danger of being a catalogue, the history of the calculus is unusual in having more than one good book on the early stages. The present book takes over where these leave off. It is composed of chapters written by six historians of mathematics, but whether from mutual consultation or from an iron hand in editing, it has none of the defects of multiple authorship.

The first chapter, by Kirst Møller-Pedersen, deals with the development of techniques between 1630 and 1660. Here, and in the second chapter, by Henk Bos, on the calculus up to 1780, is the place where the self-imposed limitation on references to published work has most effect. Harriot has to be content with an aside, for anticipating the European discovery of techniques of algebra and calculus. A similar limitation in chapter two, the development of the Leibniz-type calculus is perhaps useful in keeping the exposition within bounds for students, but it does obscure the

important fact that there are really two different calculi differing in their concepts, though not in terms of their practical applications. None the less, these first two chapters provide a brisk and workmanlike account of the development of the calculus up to and including Euler.

The key turning-point comes in the next chapter, by the editor, on the emergence of what we would now recognize as analysis. The treatment here is intentionally limited to the form of analysis usually encountered in undergraduate courses, rather than the more modern techniques. Cauchy is the great master textbook writer here of course — "My principal aim has been to reconcile the rigour of which I had made myself a law in my *Cours d'analyse*, with the simplicity which results from the direct consideration of infinitely small quantities." But already the centre of gravity was passing to the French, most of the classic French texts were translated and from the 1860s it was Weierstrass's lectures in Berlin which formed undergraduate analysis as we have it today.

After this, the story gets too complex to continue a strictly forward chronological account. The next chapter, by Thomas Hawkins, is on the development of theories of integration, and this arose because of the changing idea of what should constitute a function. Indeed, one of the most interesting features of the early part of this chapter is the way in which some concepts, for example, uniform boundedness, failed to come to notice (even after the discovery of the existence of a function of the instance of the pointwise definition of a function, rather than trying to work as far as possible with intervals).

Such a definition only becomes feasible when much more is known about pointwise theory, and the last part of the chapter deals very clearly with the formulation of the idea of measure of a set, up to Lebesgue and Schöenflies at the very turn of the century.

Whereas their ideas on point-sets were directly derived from the question of when and how an area can be regarded as having been defined, the next chapter, by Joseph Dauben, deals with Cantor's contribution. It is very striking how the immense and as it seemed to many of his contemporaries, outrageous edifice

of set theory grew for Cantor from a single well-defined technical problem in analysis.

It is important to understand to what a large extent this is true about all modern mathematical discoveries, and this means that there is a serious disadvantage in trying to present the finished theory to undergraduates (or even to school-children) who have no knowledge of the original problem. Cantor, as a young man, was introduced by Helmholtz to the problem of whether the representation of a function by a Fourier series was unique.

The question depends on the number of points of exception, in which either the function fails to be continuous or the series fails to converge, and within three years of starting the problem Cantor had been able to show that there could be an infinite number of such exceptional points, so long as they were distributed in an appropriate way.

In order to express this clearly, Cantor felt the need to have a better theory of the real numbers, which in turn led him to the limit points of sets and thus, by the end of the first decade of the work, to a descriptive theory of point sets. But five years later came the first of Cantor's mental breakdowns, and although he was to recover from this and indeed his last major contribution to set theory was more than a quarter-century from the first, the rest of his life was a sad one. Dauben's chapter tells a fairly well known story, clearly and with very satisfactory mathematical explanations.

The last chapter, by Robert Bunni, deals with the beginnings of research into the foundations of mathematics from Cantor up to the start of the publication of *Principia Mathematica* in 1910. Thus, Dedekind, Frege, Russell and Peano are covered, but not Brouwer, as his writings did not make a positive contribution (as distinct from a critical one) until 1918. This gives a good idea of an incomplete story, though it must be said that the standard form, coming as it does from 1923, repeats that from the *Begriffsschrift*.

C. W. Kilmister

C. W. Kilmister is professor of mathematics at King's College, London.

## Classifying finite simple groups

The Finite Simple Groups and their Classification  
by Michael Aschbacher  
Yale University Press, £4.40  
ISBN 0 300 02449 5

Finite simple groups arose historically as the obstruction to the solution of equations by radicals, specifically the classical problem of the solvability of the equation  $x^5 - 1 = 0$ . The theory of finite groups developed, the simple groups emerged as building blocks. Thus, they are of fundamental interest in their own right, but perhaps of equal importance is the determination of all finite simple groups, which is what is meant by classification — will answer many questions which are otherwise apparently unanswerable. For example, this is what Aschbacher's original intention was, to provide a two-transitive permutation group, a finite simple group.

Although attempts to discover finite simple groups have continued over a century, it is only during the past 25 years that any systematic attempt at a classification has been made, and in the past 10 that a specific programme has been followed. This programme has been followed, the completion has been followed, the immense task seems now very close to completion. Indeed, this would not have been the case without Aschbacher's survey of those aspects with which he has been working, which is especially significant in the work on the Monster, some of the most recent work on the classification of finite simple groups.

Aschbacher begins with a description of the known simple groups. The sporadic groups have received recent publicity, perhaps because of the aura of discovery which surrounds them, but they are not the main focus of the book. The non-sporadic, to whom this book is addressed, need start with only a basic knowledge of finite group theory, though clearly an established mathematical background will be desirable if he is to follow this account of some very deep work.

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audience at Yale in 1978. Despite that, there is plenty here for the expert; in particular, the book is a very good introduction to the basic thinking behind the way in which Aschbacher has fused the local methods of the Thompson school with the more geometrical approach of Fischer and his disciples, something which is often obscured by technical details. The book is a non-specialist, to whom this book is addressed, need start with only a basic knowledge of finite group theory, though clearly an established mathematical background will be desirable if he is to follow this account of some very deep work.

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Michael J. Collins

Michael J. Collins is fellow and professor in pure mathematics at University College, Oxford.

## Igneous petrogenesis

The Interpretation of Igneous Rocks  
by K. G. Cox, J. D. Bell and R. J. P. Allen  
Allen & Unwin, £18.00 and £8.95  
ISBN 0 04 442015 and 552016 X

Having given courses on igneous petrology and petrogenesis to final year undergraduates and to postgraduate students for the past decade or so, I have always found difficulty in recommending a suitable textbook. The reason is that the subject has been evolving so rapidly during this period, under the stimulus of major improvements in geochemical instrumentation and in experimental technology, that existing textbooks, covering igneous petrogenesis seem to be out of date almost before they are published.

What was once a subject dependent on the hammer and microscope; and, say, annual field trips to the Scottish Hebrides, has now entered the era of the blackboard, computer data handling, and ATEX flights to global destinations. It is refreshing then that this group of reputable Oxford petrologists, have put together a book which attempts to bring us a little more up to date with the rapidly changing petrology, trace element and isotope geochemistry, and yet does not forget that most students' view of igneous petrology is down the petrological microscope.

Over half the book is concerned with experimental petrology, the interpretation of phase diagrams. These are dealt with in order of increasing complexity, starting with simple two-component systems, advancing through ternary systems to quaternary systems. There are additional chapters on the experimental studies of natural rocks and on water-bearing systems. This is a valuable compilation and simplified summary of results now scattered through numerous journals.

John Tarney

John Tarney is professor of geology at the University of Leicester.

## Basis of pigmentation

The Coat Colors of Mice  
by W. K. Silvers  
Springer, £29.50  
ISBN 3 540 90367 4

Pigmentation is not merely a social problem, it is also a genetic and evolutionary one. The genetic basis of human pigmentation is obscure, and all explanations of racial differences are unsatisfactory. The only thing we know for certain is that it is a polygenic trait (that is, it is dependent on the expression of a number of genes). The number of loci and alleles involved is pure conjecture, based on the treatment of pigmentation as a quantitative trait, with a continuous and continuous variability, and the application of appropriate statistical techniques. Unfortunately, every such trait can be explained on the basis of a few loci with three or four alleles each, with varying degrees of dominance, and the complexity of the situation — well over 50 loci, more than 150 alleles are involved in the control of pigmentation in the mouse — is admirably handled. The treatment is comprehensive, although the biological aspect could have been discussed at great length to the advantage of many geneticists. The material is arranged systematically, each locus being considered separately. Although interactions between genes at different loci are described, such descriptions are too scattered to be of much use. They ought to be made, for pigmentation loci provide some of the best examples of gene interaction in mammals.

The reader will find that one fact stands out prominently: a very large number of pigmentation loci, including virtually all the major ones, are pleiotropic (that is, they affect more than one characteristic in the phenotype). Their other effects cover a wide range, some examples being embryonic mortality, sterility, obesity, skeletal malformations, abnormal vision, and deafness. These effects must have far greater significance for the animal than pigmentation; if they are seen as pointers to the true functions of these loci, then it is possible to see the view that pigmentation is probably no more than an incidental effect, which has acquired such importance, only because it is so noticeable. This view can be further extended to the origin of racial differences, and the possibility arises that natural selection may have acted on these other more important functions of the pigmentation loci.

M. S. Deol

M. S. Deol is reader in genetics at University College, London.

## Caught in a pesticide treadmill

The Pesticide Conspiracy  
by Robert van den Bosch  
Penguin, £5.95 and £3.95  
ISBN 0 304 2730 0 and 31 0

Pesticides are chemical agents used by farmers, foresters, public health authorities and others to control populations of "pest" organisms which are harmful to man, his crops, his livestock and his property. Most are synthetic organic compounds. Their use has greatly increased since the Second World War, mainly because they reduce labour costs. Most people whose work involves them in pest control, would agree with Professor van den Bosch that "widespread pesticides are an invaluable tool for the farmer, the forester, the public health officer, and the pest control officer. They have certain characteristics which make them unique and very valuable. First, none of them is specific to one pest against which they are applied, and hence their use is bound to affect populations of many other organisms, to some extent. Secondly, very extensive use of a pesticide frequently causes the pest species to develop resistance through natural selection. To make the best use of pesticides, one has to integrate

their use with appropriate cultural methods of cultivation and biological control. The late Professor van den Bosch (Professor of Entomology at Berkeley, University of California) was the world's leading authority and exponent of integrated control, and he says that he must be taken very seriously.

The Pesticide Conspiracy is about the political and economic forces which encourage the agrochemical industry to expand its control, and the cause of this is a pesticide lobby, that is, a group of control based on the use of pesticides alone. It is not surprising that the agrochemical industry does not make much effort to promote the use of pesticides, but rather, there is a temptation for less scrupulous firms actively to campaign against measures undertaken to support integrated control, and more rigorous protection of the environment. The central theme of Professor van den Bosch's book is that such campaigns do occur in the United States. He provides much evidence to show that not only does the chemical industry in the United States, but also the agrochemical industry in the United States, is a shocking one. The USA is a shocking one. The agrochemical industry in the United States, is a shocking one. The agrochemical industry in the United States, is a shocking one.

Entomological Society of America. In the first part of the book Professor van den Bosch outlines the scale and seriousness of the problem, which man faces in trying to control his insect competitors, whose numbers and genetic plasticity make them such formidable adversaries. He describes "technology's" ironic role in enhancing the insects' capabilities, and that he cannot ignore the fact that the agrochemical industry, which he cannot ignore, is a very serious one, and that he cannot ignore the fact that the agrochemical industry, which he cannot ignore, is a very serious one.

Professor van den Bosch's book is a shocking one. The agrochemical industry in the United States, is a shocking one. The agrochemical industry in the United States, is a shocking one. The agrochemical industry in the United States, is a shocking one. The agrochemical industry in the United States, is a shocking one. The agrochemical industry in the United States, is a shocking one.

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and organizations who, by promoting the long-term interests of agriculture and the environment, threaten sales of pesticides in the short term. He accuses industry of interfering with university research and appointments, and most disturbingly describes how the authority and impartiality of the Environmental Protection Agency (EPA) has been undermined.

It is not possible for a reviewer in another country to confirm or deny these very serious accusations, but since they are made by a scientist of great ability and integrity, they should be taken very seriously indeed, not least in Britain, where at least some of the problems which afflict the USA are relevant.

Professor van den Bosch's important book is written in a journalistic style, and shows signs of being a bit more scientific approach could be introduced into the book. The book is a shocking one. The agrochemical industry in the United States, is a shocking one. The agrochemical industry in the United States, is a shocking one.

N. W. Moore

N. W. Moore is Chief, Advisory Office, of the Pesticide Conspiracy, which is a shocking one.



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The University of St. Andrews is a member of the University Grants Committee for Scotland.

Applications should be sent to the Director of the Department of Psychology, St. Andrews, Fife, Scotland, by 1st November 1949.

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هَذَا مِنْ أَلْفِ حُلِّ







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**The DIRECTOR,**  
Department of Research & Specialist Services,  
P.O. Box 8108,  
CAUSEWAY, ZIMBABWE.

To reach him as soon as possible, and from whom further details may be obtained.

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Copy for classified advertisements in the T.H.E.S. should arrive not later than 10.00 a.m. Monday preceding the date of publication.

MOZAMBIQUE Institute of Agronomy Research, Maputo, has a vacancy for an experienced person to work in entomology section. Experience of large volumes of material, interpretation of aerial photography and soil sampling is essential. For details contact Mozambique Recruitment Programme, 34 Peter St, London W1P 6PB. (Tel: 01-634 1166)

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For further information phone (705) 875 1151, Ext. 200.

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The Centre, which has been established recently, is developing an interdisciplinary educational and research programme on various aspects of the evolution and development of cooperative firms as business enterprises.

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Candidates for Senior Fellowships should have already undertaken research at an advanced level. Candidates for ordinary Fellowships should normally hold a good honours degree preferably with some experience of relevance to cooperatives. There will be opportunities for study for advanced degrees. Applications should send curriculum vitae together with the names of three referees to Professor David J. F. Lacey, Director, Bank of Ireland Centre for Cooperative Studies, University College, Cork, Ireland.

Established scholars who would be interested in participating in the Centre's activities during sabbaticals or for shorter periods are also invited to contact the Director to discuss possible arrangements.

### Courses

### Leicester Polytechnic

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### Union view

## Variations in conditions of service

Staff relations in the universities has received extensive coverage in recent columns of THES. One aspect which certainly works against any overall improvement in this all-important area and is the cause of much confusion and resentment, is the way universities deal with the conditions of service of staff. Conditions are shrouded for all the different universities and one thing which is not linked to an individual's pay, and covers such matters as employment security, sick leave, maternity leave, sabbatical arrangements and so on, and includes other items which have grown up by custom and practice over the years.

For the largest bargaining unit affecting academic and related staff, which covers lecturers, librarians, administrators, researchers and others, conditions are set by each university. Unlike pay, which is settled in national negotiations, for both clinical and non-clinical staff no mechanism exists for reaching agreements nationally on conditions of service with the organization representing the affected staff.

No one, least of all the Association of University Teachers, wants a rigid and inflexible system whereby freedom on each and every matter is taken away from each university. However, the way the present system operates works against the interests of both the universities and their staff and reveals a compelling case for certain minimum standards to be set for specified conditions at work.

The most obvious reason, though, deals with the way that such negotiations are conducted elsewhere in the public sector. Many academic staff, particularly those in the administrative and library grades, are now conscious of the progress being made by other groups of staff who have the advantage of national negotiations. While civil servants, local government officers, National Health Service employees and other public sector staff can make do with improving their conditions, no similar opportunities exist for university staff. Apart from the ability to submit negotiated claims, the staff mentioned above are also able to gain improvements in their conditions at the same time as wage

negotiations take place, as part of a complete package. This option is not available to clinical and non-clinical staffs because of the limitations put on their pay machinery.

In theory it is possible for improvements to be obtained locally at each and every university. However, this means dealing with 44 different universities and in some federal universities like the University of London with each college and medical school having the power locally to fix conditions of service. In the past, the AUT has put out very specific advice on agreements that should be obtained locally and has made available to local negotiators the most detailed conditions of service analysis of what academic staffs get.



The reality of the situation is that due to the pressure mounted by AUT local associations to get improvements locally, individual universities are increasingly acting in regional or other groups to counter the advice we are giving from the centre. In addition, the Committee of Vice-Chancellors and Principals, while not an employers' organization, is being forced to take on the mantle of giving advice on employment matters. What all this adds up to is "behind the scenes" pressure which makes it improbable that progress can be made locally and with the result that local members become frustrated because there is no mechanism to allow their claims to be considered at a higher level.

Anomalous and injustices abound in the present system. What can be the justification for sick leave for the same staff at different universities ranging from 13 weeks to 26 weeks on full pay, or for maternity leave at one being four weeks and at another 26 weeks on full pay? A further example is annual leave for related staff, which varies from as little as 18 days to 30 days and over, so that academic staff can have the same opportunity to improve their major conditions as other groups in the public sector.

John Akker

The author is deputy general secretary of the Association of University Teachers.

### Science in America

## US magazine moguls cash in on boom



Clive Cookson

America's magazine moguls have suddenly discovered that the public has a voracious appetite for science. Over the last two years, there has been an extraordinary boom in science journalism, with several heavyweights launching new projects or what had been a curiously neglected market.

The latest entrant, uncharacteristically late on the scene, is Time Inc. The first issue of *Discover*, the brilliant new monthly magazine about the adventure of science, is due out in October, preceded by a barrage of advance publicity.

Unfortunately Time Inc.'s glossy

advertising brochures are not a good omen for the accuracy of *Discover*. They declare brazenly: "There's never been anything like it... a science magazine for the educated, intelligent non-scientist". But that is precisely the readership of *Science* 80, launched at the end of last year by the American Association for the Advancement of Science (AAAS).

*Science* 80 is doing so well—its circulation started at 250,000 and the print-run for the next issue is 725,000—that it will go months from November. The cautious AAAS (which is roughly equivalent to the British Association for the Advancement of Science) launched *Science* 80 as a bi-monthly, to the detriment of its newsmagazine. The association is relying on its prestige as the publisher of the 100-year-old *Science*, the premier scholarly journal in the United States, to defend *Science* 80 against the journalistic might of Time Inc.

But the AAAS recently took to the courts to defend itself against another competitor, the Hearst Corporation. It successfully sued Hearst for infringing on its trademark when the corporation brought out a test issue of *Science* Digest with a cover on which the word "Science" appeared much larger than "Digest". The AAAS threatened the Hearst was trying to imitate its *Science* logo.

*Science* Digest has in fact been coming out for nearly 50 years as a free, low-key, paper-backed publication. However, Hearst, who has been publishing *Science* Digest since 1978, has decided to compete with *Discover* and *Science* 80. Three test issues have sold nearly 200,000 copies each on newsstands.

In a category quite on its own is Omni, whose launching two years ago, when Bob Guccione, publisher of the soft-core *Penthouse*, touched off the current science magazine boom. Although many scientists are repelled by his head of fact and fantasy which he believes gives better the wrong impression of their

favour" matter and the period can be as little as one term in seven years.

Another outstanding anomaly is that it is not always possible because of the terms of local agreements for all conditions to be dealt with at the university level. For example, one has a crazy situation of fees being paid to external examiners being excluded, as a subject, by individual vice-chancellors in local talks, because strictly such persons are not employed directly by their university.

They are, in other words, being paid on a fee basis, but the fees which they obtain are not appropriate to national level either since the AUT has no national negotiating rights for this group. It is not possible, therefore, for a collective agreement to be reached which would set a minimum rate. This situation allows for some universities to pay as little as £20 for an external examiner to examine a PhD student, and there is no mechanism for the AUT to negotiate an increase.

Of course, the argument that is used against the establishment of any national machinery is that university autonomy would be sacrificed. Apart from the obvious comeback that autonomy has already been conceded on pay, one major condition is already dealt with nationally, i.e. superannuation. The reasons why universities have been set up as autonomous and independent bodies are very important to preserve, though a cynic might add that the cash limit system and financial squeeze on universities has done more than any single issue to reduce their independence. It is hard, though, to see what is so revolutionary and earth-shattering in university ties coming together to settle sick leave, maternity leave, or other such conditions.

For all these reasons, therefore, the AUT has decided that it will be pursuing, with the vice-chancellors, national negotiations for certain major conditions. The recent history of this has been that several years ago the vice-chancellors collectively considered this and the majority turned it down. This time, if progress is not made, the AUT will be calling upon ACAS to intervene, so that academic staff can have the same opportunity to improve their major conditions as other groups in the public sector.

John Akker

The author is deputy general secretary of the Association of University Teachers.

profession, the magazine has sold extremely well. Recent circulation is close to 300,000, more than science fiction and weird pulp. *Omni* does contain some serious articles by serious scientists, so a recent report that Mr Guccione plans to start two new science magazines could be good news.

At the opposite extreme from *Omni* in the general science field is *Scientific American*. In a way it is wrong to include that staid old publication in a column about the current boom in science magazines, because the two publications have little in common. *Scientific American* has a stable circulation above 700,000, mainly among professional scientists and engineers and it is unlikely to be affected by the rash of new magazines competing for the millions of newly discovered lay readers.

Daily newspapers, which always took science more seriously than their British counterparts, have further strengthened their coverage over the last couple of years. Television is catching up too. This summer the CBS network launched *Universe*, a weekly science magazine, programme presented by America's most famous TV news personality, Walter Cronkite.

The media wheel out several stock explanations for their popularity boom. One is the fact that there are more science-related issues for the public to worry about these days—energy shortages and their solution, Three Mile Island and nuclear power, environmental pollution, genetic engineering, computing and microelectronics, etc. Another is the demographic explanation: The "baby boom" generation born in the 1940s and 50s, who grew up under the influence of Sputnik and the space race, and then of the environmental movement, have now reached magazine buying age and are more interested in science than any previous generation.

There is probably some truth in these views. But there is also a greyer, but in reality the public has always been eager for news about science.

## Don's diary

### Sunday

Here in Jerusalem the working week begins on Sunday. Off at (what is for me) the early hour of 11.30 am for my morning constitutional along "King's Parade". F. M. Cornford, author of that indispensable masterpiece, *Microcosmographia Académica*, argues that the essential condition of academic success is to spend the time between 2.00 pm and 4.00 pm every single day walking up and down King's Parade. This, as a visitor to Israel, I find this quintessentially Cantabrigian doctrine to the exotic surroundings of the Hebrew University of Jerusalem (with suitable alteration to accommodate sabbath). The covered walkway along the spine of the Givat Ram campus in west Jerusalem is the local King's Parade. It is a cosmopolitan crossroads. In the course of my half-hour perambulation I bump into a visiting professor, a student, a refugee, an Iranian student (the real sort, unlike the ones who stayed behind), my brother fresh in from Dublin, and the exiled Roman Catholic bishop of Malawi.

My business at the university concluded I cross the main road to visit the Israel state archives which are situated in the basement of the prime minister's office. The weekly cabinet meeting is just breaking up, and as I pass by television cameramen are zooming in on the carefree Prime Minister, Professor Yigal Yadin, as he emerges from the main door of the building. According to the opinion polls Yadin's party currently enjoys the backing of around 93 per cent of the population (which must make him the least popular head of government in the world, bar none, even Pol Pot seems to have some support). The other 97 per cent being apparently of the view that Yadin should nip back across the Jordan to his old job as professor of archaeology at the Hebrew University. While Yadin cheerfully deplores this suggestion, to the swarming cameramen, I hop round the side door towards the archives. Just inside the building I almost fall over a huge metal crucifix which has apparently been dumped in the corridor outside the archives. It bears a plaque with the legend: "In honor of three statements of vision and in commemoration of their achievement of peace, Washington 1978, presented by K. Holzbacher, Peoria, Illinois". On closer inspection the monstrous trip up turns out to consist of a trio of busts: Jimmy Carter, Anwar Sadat and Menachem Begin, each with a huge metal crucifix, each village subtly informed by the sculptor so as to look like a mid-western businessman, square of jaw and draped in a Brooks Brothers suit. I hurry on.

### Monday

Back at the archives again I confront one of the great facts of daily life in Israel today: inflation, currently running at around 200 per cent. By a glorious fluke inflation has not a wonderfully beneficial effect on my research methods. Ten years ago when I worked in what was then Golda Meir's basement I used to copy out the archival material laboriously in pencil longhand. Since then all has changed. Personality, Walter Cronkite. The media wheel out several stock explanations for their popularity boom. One is the fact that there are more science-related issues for the public to worry about these days—energy shortages and their solution, Three Mile Island and nuclear power, environmental pollution, genetic engineering, computing and microelectronics, etc. Another is the demographic explanation: The "baby boom" generation born in the 1940s and 50s, who grew up under the influence of Sputnik and the space race, and then of the environmental movement, have now reached magazine buying age and are more interested in science than any previous generation.

There is probably some truth in these views. But there is also a greyer, but in reality the public has always been eager for news about science.

### Tuesday

Bookhunting in the Old City with my brother. We come across what looks like a cross between the original old curiosity shop and one of those sadly vanished second-hand bookshops on Charing Cross Road. Dust everywhere. Ownership, apparently Greek, is divided between an elderly turgid perched near the front, resembling a tritoeuse, and her husband, who has no teeth and tells us that he arrived in Jerusalem from Macedonia in 1924. Yes, he remembers Herbert Samuel, he is a communist very clearly. I do not ask about the nanny. At the back, buried in cobwebs are piles of decaying books stacked up to the ceiling. Most of it seems to be medical tests published around 1910 in the Greek tongue. I pick up a juicy tome on political scandals in the Third Republic and an account of the justice of Greek claims to Anatolia, published at Smyrna in 1921.

### Wednesday

Although the teaching year is over I have to meet students to discuss their term papers. The general standard seems remarkably high and I award grades accordingly. Today, however, a surprise is in store. In comes János Déak, who arrived in Israel from Transylvania four years ago, to collect his paper on British policy in Egypt after the First World War. After accepting my congratulations on his excellent analysis of the policies of Milner, Allenby, and Zaghari Pasha, he is told that his grade is 87 per cent. He complains that the mark is wrong. Not too low, but too high. I offer to lower it to what I would regard as the equivalent in my English University—about 68 per cent. At this, however, he demurs. I relate the original grade and we part amicably. In the direction of the student messes where he works as a dishwasher, I towards King's Parade.

### Thursday

A hamsin day, 95°F outside and horribly sticky. I stay at home and ruminate over an unwritten book review. Can I read the book? It's too hot.

### Friday

A trip to the country for the weekend. My niece, Raymond Cohen, who teaches international relations in the university, has invited me to visit his *moshav* in the north, where he grows oranges. We sit under an acacia tree and discuss agricultural economics which for the first time seems to me of some interest. Apparently citrus fruit is a better bet than university lecturing. Alas, it is not an option open to us in Sheffield.

### Saturday

In the evening I return to the cool air of Jerusalem. I decide that the work has (like most of my weeks here) been pleasant but unproductive. I decide to turn over a new leaf tomorrow morning. I write up bright and early and turn up at King's Parade at the very latest at 10.45 am.

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